

*SCR  
S/J  
Conc/14*  
*H1  
Conf.*

a gate insulating layer contacting said [channel] semiconductor layer; and

a gate electrode adjacent to said [channel] semiconductor layer with said gate insulating layer therebetween,

wherein said [channel] semiconductor layer comprises a [non-single] crystalline silicon semiconductor layer containing oxygen, nitrogen or carbon at a concentration [5]  $1 \times 10^{19}$  atoms/cm<sup>3</sup> or less and said semiconductor layer shows a Raman shift at a wavenumber of 512 cm<sup>-1</sup> or higher.

*Substitution*  
*K2 X*

24. (Amended) The thin film transistor of claim 23 wherein said [channel] semiconductor layer is formed on an insulating surface of a substrate.

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H3*

25. (Three Times Amended) A thin film transistor comprising:  
[an intrinsic channel] a semiconductor layer having an intrinsic or substantially intrinsic channel region;

a gate insulating layer contacting said [channel] semiconductor layer; and

a gate electrode adjacent to said [channel] semiconductor layer with said gate insulating layer therebetween,

wherein said [channel] semiconductor layer comprises a [non-single] crystalline silicon semiconductor layer containing oxygen, nitrogen or carbon at a concentration [5]  $1 \times 10^{19}$  atoms/cm<sup>3</sup> or less and a ratio of a full band width at half maximum (FWHM) of a Raman peak of said [channel] semiconductor layer to a FWHM of a Raman peak of a single crystalline silicon is less than 3.

~~Subst. K4~~  
26. (Amended) The thin film transistor of claim 25 wherein said [channel] semiconductor layer is formed on an insulating surface of a substrate.

~~Sub  
53  
45~~  
27. (Three Times Amended) A thin film transistor comprising:  
[an intrinsic channel] a semiconductor layer having an intrinsic  
or substantially intrinsic channel region;  
a gate insulating layer contacting said [channel] semiconductor  
layer; and  
a gate electrode adjacent to said [channel] semiconductor layer  
with said gate insulating layer therebetween,  
wherein said [channel] semiconductor layer comprises a [non-  
single] crystalline silicon semiconductor layer containing oxygen, nitrogen  
or carbon at a concentration [5]  $1 \times 10^{19}$  atoms/cm<sup>3</sup> or less and a peak  
intensity ratio I<sub>a</sub>/I<sub>c</sub> of said [channel] semiconductor layer is less than 0.4  
where I<sub>a</sub> represents a Raman peak intensity at a wavenumber of 480 cm<sup>-1</sup>  
for an amorphous component of said [channel] semiconductor layer and I<sub>c</sub>  
represents a Raman peak intensity at 521 cm<sup>-1</sup> for a single crystalline  
silicon.

~~Subst.  
H K6~~  
28. (Amended) The thin film transistor of claim 27 wherein said [channel] semiconductor layer is formed on an insulating surface of a substrate.

~~Sub  
LX H~~  
29. (Amended) The thin film transistor of claim 23 wherein said [channel] semiconductor layer comprises a laser annealed[, non-single]  
crystalline silicon semiconductor layer.

H7  
Cont

30. (Amended) The thin film transistor of claim 25 wherein said [channel] semiconductor layer comprises a laser annealed[, non-single] crystalline silicon semiconductor layer.

31. (Amended) The thin film transistor of claim 27 wherein said [channel] semiconductor layer comprises a laser annealed[, non-single] crystalline silicon semiconductor layer.

32. (Twice Amended) A thin film transistor produced by a process comprising the steps of:

forming on a surface a semiconductor film having an intrinsic or substantially intrinsic channel region [silicon semiconductor film] containing therein carbon, nitrogen or oxygen at a concentration of [5]  $1 \times 10^{19}$  atoms/cm<sup>3</sup> or less; and

irradiating said entire semiconductor film with a laser beam or a light having a strength equivalent to the laser beam with melting the semiconductor film to increase the degree of crystallinity thereof.

33. (Twice Amended) A thin film transistor comprising:  
[an intrinsic channel] a semiconductor layer having an intrinsic or substantially intrinsic channel region,  
a gate insulating layer contacting said semiconductor [channel] layer; and

a gate electrode adjacent to said semiconductor [channel] layer with said gate insulating layer therebetween;

wherein said [channel] semiconductor layer comprises a non-single crystalline silicon semiconductor layer containing oxygen at a

concentration  $1 \times 10^{19}$  atoms/cm<sup>3</sup> or less and said semiconductor layer shows a Raman shift at a wavenumber of 512 cm<sup>-1</sup> or higher.

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cont.*

34. (Twice Amended) A thin film transistor comprising:

[an intrinsic channel] a semiconductor layer having an intrinsic or substantially intrinsic channel region;

a gate insulating layer contacting said [channel] semiconductor layer; and

a gate electrode adjacent to said [channel] semiconductor layer with said gate insulating layer therebetween,

wherein said [channel] semiconductor layer comprises a non-single crystalline silicon semiconductor layer containing oxygen at a concentration  $1 \times 10^{19}$  atoms/cm<sup>3</sup> or less and a ratio of a full band width at half maximum (FWHM) of a Raman peak of said [channel] semiconductor layer to a FWHM of a Raman peak of a single crystalline silicon is less than 3.

*H & G*

35. (Twice Amended) A thin film transistor comprising:

[an intrinsic channel] a semiconductor layer having an intrinsic or substantially intrinsic channel region;

a gate insulating layer contacting said [channel] semiconductor layer; and

a gate electrode adjacent to said [channel] semiconductor layer with said gate insulating layer therebetween,

wherein said [channel] semiconductor layer comprises a non-single crystalline silicon semiconductor layer containing oxygen at a concentration  $1 \times 10^{19}$  atoms/cm<sup>3</sup> or less and a peak intensity ratio I<sub>a</sub>/I<sub>c</sub> of

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*Cont'd*  
*Hg*  
*Q.S.*

said [channel] semiconductor layer is less than 0.4 where I<sub>a</sub> represents a Raman peak intensity at a wavenumber of 480 cm<sup>-1</sup> for an amorphous component of said [channel] semiconductor layer and I<sub>c</sub> represents a Raman peak intensity at 521 cm<sup>-1</sup> for a single crystalline silicon.

*H9*

[Please add new claims 36-38 as follows:]

--36. A thin film transistor produced by a process comprising the steps of:

forming on a surface a semiconductor film having an intrinsic or substantially intrinsic channel region containing therein carbon at a concentration of  $1 \times 10^{19}$  atoms/cm<sup>3</sup> or less; and

irradiating the semiconductor film with a laser beam or a light having a strength equivalent to the laser beam to increase the degree of crystallinity of the semiconductor film.

37. A thin film transistor produced by a process comprising the steps of:

forming on a surface a semiconductor film having an intrinsic or substantially intrinsic channel region containing therein nitrogen at a concentration of  $1 \times 10^{19}$  atoms/cm<sup>3</sup> or less; and

irradiating the semiconductor film with a laser beam or a light having a strength equivalent to the laser beam to increase the degree of crystallinity of the semiconductor film.

38. A thin film transistor produced by a process comprising the steps of: